IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with strikethrough. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please cancel claims 1 and 17 without prejudice or disclaimer

Please AMEND claims 2, 14, and 18-21 in accordance with the following:

1.   (CANCELLED)

2.   (CURRENTLY AMENDED) An echo cancellation processing system according to claim ~~1~~ 19, further comprising:

a wraparound delay amount detecting part ~~for~~ comparing an output speech signal supplied to the loudspeaker with a wraparound speech signal contained in an input speech signal inputted through the microphone array, and detecting a delay amount of the wraparound speech signal contained in the input speech signal delayed from the output speech signal; and

a delay processing part ~~for~~ delaying the output speech signal in accordance with the delay amount detected by the wraparound delay amount detecting part,

wherein an output speech signal of the delay processing part is inputted to the estimated wraparound speech signal generating part as an input signal.

3.   (ORIGINAL) An echo cancellation processing system according to claim 2, further comprising a wraparound speech signal emphasizing part for emphasizing and extracting the wraparound speech signal from the input speech signal,

wherein the wraparound speech signal emphasizing part comprises:

a first delay amount calculating part for calculating a delay amount between the respective microphone input signals delayed from the loudspeaker based on input speech signals inputted through each microphone constituting the microphone array; and

a first addition processing part for conducting synchronous addition processing regarding an input speech signal inputted through each microphone constituting the microphone array, by adjusting the delay amount between the respective microphone input signals delayed from the loudspeaker, and emphasizing the wraparound speech signal, and the emphasized wraparound speech signal is inputted to the wraparound delay amount detecting part.

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4.   (ORIGINAL)   An echo cancellation processing system according to claim 3, wherein the first addition processing part comprises:

a delay unit for adjusting the delay amount between the respective microphone input signals delayed from the loudspeaker corresponding to each microphone constituting the microphone array; and

an adder whose input signal is an output signal of the delay unit through each microphone.

5.   (ORIGINAL)   An echo cancellation processing system according to claim 4, further comprising a speaker's speech signal emphasizing part for conducting synchronous addition processing of a speaker's speech signal inputted through each microphone constituting the microphone array, and emphasizing the speaker's speech signal, thereby generating an input speech signal in which a speaker signal is emphasized.

6.   (ORIGINAL)   An echo cancellation processing system according to claim 5, wherein the speaker's speech signal emphasizing part comprises:

a second delay amount calculating part for calculating a delay amount between respective microphone input signals delayed from the speaker based on input speech signals inputted through each microphone constituting the microphone array; and

a second addition processing part for executing synchronous addition processing regarding an input speech signal inputted through each microphone constituting the microphone array, by adjusting the delay amount between the respective microphone input signals delayed from the speaker, and emphasizing the speaker's speech signal.

7.   (ORIGINAL)   An echo cancellation processing system according to claim 6, wherein the second addition processing part comprises:

a delay unit for adjusting the delay amount between the microphone input signals delayed from the speaker corresponding to each microphone constituting the microphone array; and

an adder whose input signal is an output signal of the delay unit through each microphone.

8.   (ORIGINAL)   An echo cancellation processing system according to claim 3,

further comprising a speaker's speech signal emphasizing part for conducting synchronous addition processing of a speaker's speech signal inputted through each microphone constituting the microphone array, and emphasizing the speaker's speech signal, thereby generating an input speech signal in which a speaker signal is emphasized.

9.   (ORIGINAL) An echo cancellation processing system according to claim 8, wherein the speaker's speech signal emphasizing part comprises:

a second delay amount calculating part for calculating a delay amount between respective microphone input signals delayed from the speaker based on input speech signals inputted through each microphone constituting the microphone array; and

a second addition processing part for executing synchronous addition processing regarding an input speech signal inputted through each microphone constituting the microphone array, by adjusting the delay amount between the respective microphone input signals delayed from the speaker, and emphasizing the speaker's speech signal.

10.   (ORIGINAL) An echo cancellation processing system according to claim 9, wherein the second addition processing part comprises:

a delay unit for adjusting the delay amount between the microphone input signals delayed from the speaker corresponding to each microphone constituting the microphone array; and

an adder whose input signal is an output signal of the delay unit through each microphone.

11.   (ORIGINAL) An echo cancellation processing system according to claim 2, further comprising a speaker's speech signal emphasizing part for conducting synchronous addition processing of a speaker's speech signal inputted through each microphone constituting the microphone array, and emphasizing the speaker's speech signal, thereby generating an input speech signal in which a speaker signal is emphasized.

12.   (ORIGINAL) An echo cancellation processing system according to claim 11, wherein the speaker's speech signal emphasizing part comprises:

a second delay amount calculating part for calculating a delay amount between respective microphone input signals delayed from the speaker based on input speech signals inputted through each microphone constituting the microphone array; and

a second addition processing part for executing synchronous addition processing regarding an input speech signal inputted through each microphone constituting the microphone array, by adjusting the delay amount between the respective microphone input signals delayed from the speaker, and emphasizing the speaker's speech signal.

13.   (ORIGINAL)   An echo cancellation processing system according to claim 12, wherein the second addition processing part comprises:

a delay unit for adjusting the delay amount between the microphone input signals delayed from the speaker corresponding to each microphone constituting the microphone array; and

an adder whose input signal is an output signal of the delay unit through each microphone.

14.   (CURRENTLY AMENDED)   An echo cancellation processing system according to claim 1 19, further comprising a speaker's speech signal emphasizing part for conducting synchronous addition processing of a speaker's speech signal inputted through each microphone constituting the microphone array, and emphasizing the speaker's speech signal, thereby generating an input speech signal in which a speaker signal is emphasized.

15.   (ORIGINAL)   An echo cancellation processing system according to claim 14, wherein the speaker's speech signal emphasizing part comprises:

a second delay amount calculating part for calculating a delay amount between respective microphone input signals delayed from the speaker based on input speech signals inputted through each microphone constituting the microphone array; and

a second addition processing part for executing synchronous addition processing regarding an input speech signal inputted through each microphone constituting the microphone array, by adjusting the delay amount between the respective microphone input signals delayed from the speaker, and emphasizing the speaker's speech signal .

16.   (ORIGINAL)   An echo cancellation processing system according to claim 15, wherein the second addition processing part comprises:

a delay unit for adjusting the delay amount between the microphone input signals delayed from the speaker corresponding to each microphone constituting the microphone array; and

an adder whose input signal is an output signal of the delay unit through each microphone.

17.   (CANCELLED)

18.   (CURRENTLY AMENDED)   An echo cancellation processing system according to claim ~~17~~ 19, further comprising a sound source number detecting part for detecting the number of sound sources in a surrounding of the microphone array based on input speech signals inputted through each microphone constituting the microphone array,

wherein in a case where sound sources whose number exceeds the number of loudspeakers are detected by the sound source number detecting part, a coefficient update of the adaptive filter in the coefficient updating part is made slow or suspended.

19.   (CURRENTLY AMENDED)   An echo cancellation processing system in a full duplex telephony system ~~according to claim 17~~, ~~further~~ comprising:

a microphone array;

a loudspeaker converting a speech signal transmitted from a telephony system on a communication partner side to a speech;

an echo cancellation processing part comprising:

an estimated wraparound speech signal generating part estimating a speech signal that is outputted from the loudspeaker and wraps around to the microphone array, using a time difference or a level difference between input speech signals of a plurality of channels of the microphone array, and generate an estimated wraparound speech signal in accordance with an estimated result based on an output speech signal supplied to the loudspeaker, comprising:

an adaptive filter, and

a coefficient updating part updating a coefficient of the adaptive filter at a predetermined timing,

wherein the coefficient updating part determines the estimated result and a coefficient update amount of the adaptive filter based on a level of a wraparound speech signal remaining in an echo cancellation result obtained by the echo cancellation processing part, and the adaptive filter conducts the adaptation based on an output speech signal supplied to the loudspeaker and generates the estimated wraparound speech signal,

a subtracter subtracting the estimated wraparound speech signal from an input speech signal inputted to the microphone array; and

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~~further comprising~~ a loudspeaker output speech signal power calculating part ~~for~~ calculating a power of an output speech signal supplied to the loudspeaker,

wherein in a case where a power with a predetermined value or more is not detected by the loudspeaker output speech signal power calculating part, a coefficient update of the adaptive filter by the coefficient updating part of the estimated wraparound speech signal generating part is made slow or suspended.

20.   (CURRENTLY AMENDED)   An echo cancellation processing system according to claim ~~1~~19, further comprising:

a speech signal switch provided in an output stage of the echo cancellation processing part;

a speech signal switch control part for controlling on/off of the speech signal switch;

a speaker's speech detecting part for detecting presence/absence of a speaker's speech based on input speech signals inputted through each microphone constituting the microphone array;

a first power calculating part for calculating a power of an output speech signal supplied to the loudspeaker; and

a second power calculating part for calculating a power of a speech signal outputted from the echo cancellation processing part,

wherein the speech signal switch control part brings the speech signal switch into an ON-state when the speaker's speech detecting part detects a speaker's speech and brings the speech signal switch into an OFF-state when the speaker's speech detecting part does not detect a speaker's speech, in a case where a value obtained by the first power calculating part is equal to or more than a predetermined value, and a value obtained by the second power calculating part is equal to or more than a predetermined value, and the speech signal switch control part brings the speech signal switch into an ON-state, in a case where a value obtained by the first power calculating part is equal to or more than a predetermined value, and a value obtained by the second power calculating part is less than the predetermined value.

21.   (CURRENTLY AMENDED)   A recording medium storing a processing program of a full duplex telephony system, the program comprising:

a processing operation of controlling a microphone array in which a plurality of microphones are disposed at predetermined positions;

a processing operation of controlling a loudspeaker for converting a speech signal

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transmitted from a telephony system on a communication partner side to a speech signal; and

an echo cancellation processing operation comprising:

an estimated wraparound speech signal generation processing operation of estimating a speech signal that is outputted from the loudspeaker and wraps around to the microphone array, using an input speech signal of the microphone array, and generating an estimated wraparound speech signal in accordance with an estimated result based on an output speech signal supplied to the loudspeaker, and

a subtraction processing operation of subtracting the estimated wraparound speech signal from an input speech signal inputted through the microphone array,

wherein the estimated wraparound speech signal generation processing operation comprises a coefficient updating operation updating a coefficient of an adaptive filter at a predetermined timing, and determining the estimated result and a coefficient update amount of the adaptive filter based on a level of a wraparound speech signal remaining in an echo cancellation result obtained by the echo cancellation processing operation, and the adaptive filter conducts the adaptation based on an output speech signal supplied to the loudspeaker and generates the estimated wraparound speech signal; and

a loudspeaker output speech signal power calculation processing operation of calculating a power of an output speech signal supplied to the loudspeaker,

wherein in a case where a power with a predetermined value or more is not detected by the loudspeaker output speech signal power calculation processing operation, a coefficient update of the adaptive filter by the coefficient updating operation of the estimated wraparound speech signal generation processing operation is made slow or suspended.